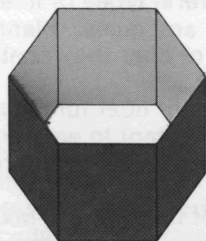


# Texas Agricultural Extension Service



## Dietary Guidelines for Americans Eat Foods With Adequate Starch and Fiber

It is important to consider all seven Dietary Guidelines in building a healthful diet:

- Eat a Variety of Foods
- Maintain Desirable Weight
- Avoid Too Much Fat, Saturated Fat and Cholesterol
- Eat Foods with Adequate Starch and Fiber
- Avoid Too Much Sugar
- Avoid Too Much Sodium
- If you Drink Alcoholic Beverages, Do So in Moderation

### What Are Complex Carbohydrates And Why Do I Need Them?

There are two basic types of carbohydrates in foods, simple and complex. Simple carbohydrates, such as sugars, provide calories but little else in the way of nutrients. Complex carbohydrates, such as starch and fiber, are usually found in foods which contain important minerals and vitamins in addition to calories.

Complex carbohydrates are found in foods such as dried beans and peas, nuts, seeds, fruits, vegetables, whole-grain bread, cereals and other grain products.

In recent years, there has been a decline in the consumption of complex carbohydrate foods in the American diet while consumption of simple carbohydrates or sugars has remained high.

The amount of calories from fat in the American diet has been increasing at about the same rate that the calories from carbohydrates have been decreasing. Since 1910, we have increased our consumption of fat by 28 percent while our consumption of carbohydrates decreased by 21 percent.

Increasing your intake of calories from complex carbohydrates can be helpful in decreasing your intake of fats.

In providing energy for weight watchers, carbohydrates have an advantage over fats: carbohydrates contain less than half the number of calories per gram than fats do.

A practical example of this can be found in the comparison of butter and flour.

1 tablespoon butter (14 grams) = 100 calories

1 tablespoon flour (8 grams) = 28 calories

### You Get Fiber, Too!

Increasing your consumption of certain complex carbohydrates can also help increase dietary fiber. The average American diet is relatively low in fiber.

While fiber will not cure or prevent all of the diseases for which it is recommended by some, it is an essential part of a good diet. Eating more foods high in fiber tends to reduce the symptoms of chronic constipation. There is also some feeling that fiber may help prevent cancer of the colon or lower cholesterol levels. However, more research is needed before these theories can be proven.

### What Is Fiber?

Grandma called it roughage. It is the tough, fibrous part of plant cell walls. Many different types of fiber are found in a variety of foods. Whole wheat bread, apples, and cabbage contribute different types of fiber to the diet, each of which benefits the body in a different way. For this reason it is important to get fiber from a variety of whole grains, fruits and vegetables.

### How Much Fiber?

Too much or too little fiber can cause problems. There is no reason to add fiber to foods that do not already contain it. To make sure you get enough fiber in your diet, eat some whole grains and a variety of fruits and vegetables daily.

### Why Eat Foods with Starch and Fiber?

- They provide energy
- They provide vitamins and minerals
- Most are low in fat
- Fiber helps the digestive system work properly
- They taste good!

## Good News About Starch

Major sources of energy (calories) in the American diet are carbohydrates and fats. When you cut down on fat and sugars as suggested by the Dietary Guidelines, you may need to increase the amount of starchy foods you eat to help supply your body's energy needs.

Unlike sugars and sweets, starchy foods provide many vitamins and minerals as well as energy.

### But Isn't Starch Fattening?

Many people think that starchy foods such as bread and potatoes are fattening. In fact, most of the calories come from the company they keep—calorie-rich additions such as butter or margarine, sour cream, gravies, jam or jellies.

Starches provide only 4 calories per gram, while fat provides 9 calories per gram. Eating more starchy foods is a good way to fill up with fewer calories, *if* you watch those additions.

## Foods for Starch and Fiber

### Some foods for STARCH:

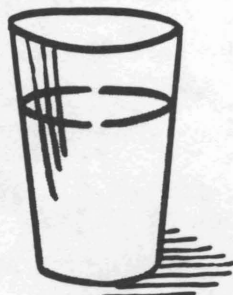
Breads  
Breakfast cereals  
Pasta, such as spaghetti and noodles  
Rice  
Dry beans and peas  
Starchy vegetables such as potatoes, corn, peas, lima beans

### Some foods for FIBER:

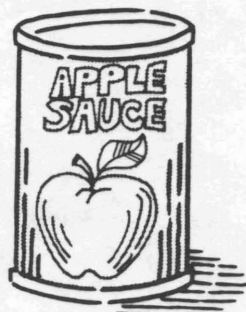
Whole-grain breads  
Whole-grain breakfast cereals  
Whole-wheat pasta  
Vegetables, especially with edible skins, stems, seeds  
Dry beans and peas  
Whole fruits, especially with edible skins or seeds  
Nuts and seeds

## Did You Know...

Form of the food will affect its fiber content



Apple juice, 3/4 cup: 0.2 g fiber



Applesauce, 1/2 cup: 2.1 g fiber



Whole apple with peel: 3.6 g fiber

## Facts on Fiber

- Dietary fiber is the parts of plants that humans can't digest.
- There are several types of fiber, such as cellulose, pectin, lignin, and gums. Plants differ in the types and amounts of fiber they contain.
- Different types of fiber function differently in the body. It is important to eat a variety of plant foods to benefit from effects of different kinds of fiber.
- Some types of fiber have a laxative effect, producing softer, bulkier stools and more rapid movement of wastes through the intestine. Fiber is helpful in preventing and treating constipation and diverticular disease.
- The possible benefits of dietary fiber for colon cancer, heart disease, diabetes, and obesity are being studied. Whether such benefits exist is not yet known.
- It is not clear exactly how much and what types of fiber we need in our diets daily. However, for most Americans, a moderate increase in dietary fiber by eating more fiber-containing foods like those listed on this page is desirable.
- There is no reason to take fiber supplements or to add fiber to foods that do not already contain it.

## What Are Whole Grains?

*Whole grains* are products that contain the entire grain, or all the grain that is edible. They include the *bran* and *germ* portions which contain most of the fiber, vitamins, and minerals, as well as the starchy *endosperm*.

Some examples are whole wheat, cracked wheat, bulgur, oatmeal, whole cornmeal, popcorn, brown rice, whole rye, and scotch barley.

**Whole grain doesn't have to mean bread or cereal. Try these:**

Brown rice	Scotch barley—in soups
Corn tortillas	Tabbouleh—a bulgur wheat salad
Popcorn, unbuttered	Whole-wheat pasta



# What's on a Label?

Starch and dietary fiber are not listed specifically on most food labels, but there are some clues you can use:

**Nutrition labels** list the amount of carbohydrate in grams per serving. This would include starch, sugars, and dietary fiber, if present. Some cereals also list these types of carbohydrates separately.

**Ingredient labels** list ingredients in the product in order by weight—from greatest to least. When a flour is listed first, most of the carbohydrate is probably starch. When sugar or other sweeteners are listed first, or several sugars are listed on the label, the product is probably high in sugar.

Most foods are not labeled for total dietary fiber content. "Crude fiber" values, shown in many tables of the nutrient content of foods, do not include all types of dietary fiber. Some cereals now provide both total dietary fiber and crude fiber values on the label.

## NUTRITION INFORMATION PER SERVING

Serving size: 1 oz. (2/3 cup)  
Servings per container: 14

	1 oz. cereal	1 oz. cereal with 1/2 cup milk
Calories	90	170
Protein	3 g	7 g
Carbohydrate	23 g	29 g
Fat	1 g	5 g
Sodium	300 mg	360 mg

## CARBOHYDRATE INFORMATION

	1 oz. cereal	1 oz. cereal with 1/2 cup milk
Starch and related carbohydrates	13 g	13 g
Sucrose and other sugars	5 g	11 g
Dietary fiber	5 g	5 g
Total carbohydrates	23 g	29 g

**INGREDIENTS:** Wheat bran, milled yellow corn, sugar, malted cereal syrup, salt, coconut oil, sodium ascorbate (vitamin C), niacinamide, reduced iron, pyridoxine hydrochloride (vitamin B<sub>6</sub>), thiamine mononitrate (vitamin B<sub>1</sub>), BHA (a preservative), folic acid, and vitamin B<sub>12</sub>. BHT added to packaging material to help preserve freshness.

Each serving contains 5 grams of dietary fiber, including 1.4 grams (5 percent by weight) non-nutritive crude fiber.

## Recognizing the Real Whole Wheat

**All whole-wheat bread is brown, but not all brown bread is whole-wheat...**

By law, bread that is labeled "whole wheat" must be made from 100 percent whole-wheat flour. "Wheat bread" may be made from varying proportions of enriched white flour and whole-wheat flour. The type of flour present in the largest amount is listed first on the ingredient label. Sometimes a dark color is provided by "caramel coloring," also listed on the label.

The milling of wheat to produce white flour results in the loss of nutrients as the bran and germ are removed. *Enrichment* replaces four important nutrients: iron, thiamin, riboflavin, and niacin. But flours made from the whole grain contain more of other nutrients, such as folic acid, vitamin B<sub>6</sub>, vitamin E, phosphorus, magnesium, and zinc, than enriched white flour.

**You don't have to switch to whole-wheat bread to increase your intake of whole grains...**

Many products on the market are made of a mixture of whole-grain flours and enriched flour. Try those listed below for variety in taste and texture, as well as a bonus of fiber and nutrients. Or, try substituting whole-grain flour for half the amount of white flour when you bake quick breads or cookies.

Bran muffins  
Cornbread, from whole, ground cornmeal  
Cracked wheat bread  
Graham crackers  
Oatmeal bread  
Pumpnickel bread  
Rye bread

# Dietary Fiber Per Serving— of Commonly Eaten Foods

Most nutrition authorities recommend that people eat 25 to 35 grams of fiber a day, or 15 grams per 1,000 calories. Wise selection of a variety of foods makes it possible to meet this need without taking fiber supplements.

## GRAMS

10

9

1/2 CUP COOKED KIDNEY BEANS  
1/3 CUP ALL BRAN CEREAL

1 CUP COOKED, DRIED PEAS

8

1/2 CUP PRUNES, 1/4 CUP DRIED APRICOTS

7

1/3 CUP BAKED BEANS

6

1/2 CUP COOKED NAVY BEANS  
1/2 CUP COOKED SPINACH

5

1/4 CUP ALMONDS  
1/2 CUP RASPBERRIES

4

3/4 CUP RAISIN BRAN CEREAL  
1/2 CUP COOKED GREEN PEAS

3

1 MEDIUM BANANA, 1 SWEET POTATO, 2 1/2-INCH SQUARE CORNBREAD

1/2 CANTALOUPE, 1 CUP STRAWBERRIES  
1/2 CUP BROCCOLI, 1 MEDIUM APPLE

2

1 SMALL ORANGE, 2 TABLESPOONS SMOOTH PEANUT BUTTER  
1/2 CUP COOKED CARROTS  
1 SLICE WHOLE WHEAT BREAD, 1/2 CUP GREEN BEANS, 1 MEDIUM TOMATO

1

1/2 CUP WHITE RICE  
1 TABLESPOON BRAN, 6 LETTUCE LEAVES, HARD WHITE ROLL  
1 SLICE WHITE BREAD

0

SALTINES, FLOUR TORTILLA, MILK, CHEESE, FISH, MEAT, JUICES

Educational programs conducted by the Texas Agricultural Extension Service serve people of all ages regardless of socioeconomic level, race, color, sex, religion, handicap or national origin.

Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Zerle L. Carpenter, Director, Texas Agricultural Extension Service, The Texas A&M University System.

40M—11-87, New

F&N